



Serial No. 09/911,116

IN THE CLAIMS:

Cancel claims 3, 10, 14, and 18.

Please note that all claims currently pending and under consideration in the referenced application are shown below, in clean form, for clarity.

Please amend the claims as follows:

1. (Twice Amended) An assembly comprising:
a first semiconductor die having at least one lead on an active surface thereof, said at least one lead having at least one conductive pad disposed thereon, said at least one conductive pad having an upper surface, having a thickness and extending above said active surface of said first semiconductor die said thickness of said at least one conductive pad, said semiconductor die substrate having a passivation layer disposed on said active surface thereof having a thickness greater than said thickness of said at least one conductive pad, said passivation layer having at least one via therein, said at least one conductive pad extending into and through only a portion of said at least one via, and said first semiconductor die having a layer of adhesive covering at least a portion of said passivation layer on said active surface, said layer of adhesive having a thickness; and a substrate having at least one lead on a facing surface thereof, said at least one lead of said substrate having at least one conductive pad disposed thereon, said at least one conductive pad of said substrate having an upper surface, having a thickness and extending above said facing surface of said substrate, said thickness of said at least one conductive pad of said substrate being at least a combined thickness of said layer of adhesive covering at least a portion of said passivation layer on said active surface of said first semiconductor die and a remaining portion of said at least one via having said at least one conductive pad of said first semiconductor die extending thereinto; said

substrate being attached to said first semiconductor die by said adhesive layer of said first semiconductor die, said first semiconductor die having said upper surface of said at least one conductive pad on said at least one lead substantially forming movable, electrical contact without mechanical attachment with said upper surface of said at least one conductive pad on said at least one lead of said substrate, said movable electrical contact provided when said second substrate die is permanently attached to said first semiconductor die by said layer of adhesive.

2. (Twice Amended) The assembly of claim 1, wherein at least one of said active surface of said first semiconductor die and said facing surface of said substrate includes at least one groove thereon.

4. (Twice Amended) The assembly of claim 1, wherein at least one of said first semiconductor die and said substrate comprises a silicon wafer.

5. (Twice Amended) An assembly comprising:

a first semiconductor die having at least one lead on an active surface thereof, said at least one lead having at least one conductive pad disposed thereon, said at least one conductive pad having an upper surface, having a thickness and extending above said active surface of said first semiconductor die said thickness of said at least one conductive pad, said first substrate having a passivation layer disposed on said active surface thereof having a thickness greater than said thickness of said at least one conductive pad, said passivation layer having at least one via therein, said at least one conductive pad extending into and through only a portion of said at least one via; and

a substrate having at least one lead on a facing surface thereof, said at least one lead of said substrate having at least one conductive pad disposed thereon, said at least one conductive pad of said substrate having an upper surface, having a thickness and

extending above said facing surface of said second substrate, said thickness of said at least one conductive pad of said substrate being at least a thickness of a remaining portion of said at least one via having said at least one conductive pad of said first semiconductor die extending thereinto, said first semiconductor die being attached to said substrate by an encapsulation material substantially surrounding said first semiconductor and a portion of said substrate, said first substrate having said upper surface of said at least one conductive pad on said at least one lead of said first semiconductor die substantially forming movable, electrical contact without mechanical attachment with said upper surface of said at least one conductive pad on said at least one lead of said substrate.

6. (Twice Amended) An assembly comprising:

a semiconductor wafer device having at least one lead on a first side thereof, said at least one lead having at least one conductive pad disposed thereon having a substantially flat surface thereon, having a thickness and extending above said first side of said semiconductor wafer device said thickness of said at least one conductive pad, said semiconductor wafer device having a passivation layer disposed on said first side thereof having a thickness greater than said thickness of said at least one conductive pad, said passivation layer having at least one via therein, said at least one conductive pad extending into and through only a portion of said at least one via, and said semiconductor wafer device having a layer of adhesive covering at least a portion of said passivation layer on said first side, said layer of adhesive having a thickness; and

at least one semiconductor die having at least one lead on a first side thereof, said at least one lead of said semiconductor die having at least one conductive pad disposed thereon, said at least one conductive pad of said semiconductor die having a substantially flat surface thereon, having a thickness and extending above said first side of said semiconductor die, said thickness of said at least one conductive pad of said semiconductor die being at least a combined thickness of said layer of adhesive covering said at least a portion of said

passivation layer on said first side of said semiconductor wafer device and a remaining portion of said at least one via having said at least one conductive pad of said semiconductor wafer device extending thereinto, said semiconductor wafer device being juxtaposed to said first semiconductor die by said layer of adhesive, said semiconductor wafer device having said substantially flat surface of said at least one conductive pad on said at least one lead of said semiconductor wafer device forming movable, electrical contact without mechanical attachment with said substantially flat surface of said at least one conductive pad on said at least one lead of said semiconductor die, said movable, electrical contact provided when said semiconductor wafer device is permanently juxtaposed to said semiconductor die by said layer of adhesive.

7. (Twice Amended) A semiconductor assembly comprising:

a first semiconductor substrate having at least one lead on a facing surface thereof, said at least one lead having at least one conductive pad disposed thereon, said at least one conductive pad having an upper surface, having a thickness and extending above said facing surface of said first substrate said thickness of said at least one conductive pad, said first substrate having a passivation layer disposed on said facing surface thereof having a thickness greater than said thickness of said at least one conductive pad, said passivation layer having at least one via therein, said at least one conductive pad extending into and through only a portion of said at least one via; and

a second semiconductor substrate having at least one lead on a facing surface thereof, said at least one lead of said second substrate having at least one conductive pad disposed thereon, said at least one conductive pad of said second substrate having an upper surface, having a thickness and extending above said facing surface of said second substrate, said thickness of said at least one conductive pad of said second substrate being at least a thickness of a remaining portion of said at least one via having said at least one conductive pad of said first substrate extending thereinto, one of said first substrate and

said second substrate being attached to another one of said first substrate and said second substrate by a glob top covering said one of said first substrate and said second substrate and adhering to at least a portion of said facing surface of said another one of said first substrate and said second substrate, said one of said first substrate and said second substrate having said upper surface of said at least one conductive pad on said at least one lead thereof substantially forming movable, electrical contact without mechanical attachment with said upper surface of said at least one conductive pad on said at least one lead of said another one of said first substrate and said second substrate, said movable, electrical contact provided when said one of said first substrate and said second substrate is permanently attached to said another one of said first substrate and said second substrate by said glob top.

8. (Twice Amended) A semiconductor assembly comprising:
a first semiconductor device having at least one lead on a first side thereof, said at least one lead having at least one conductive pad disposed thereon having a substantially flat surface thereon, having a thickness and extending above said first side of said first semiconductor device said thickness of said at least one conductive pad, said first semiconductor device having a passivation layer disposed on said first side thereof having a thickness greater than said thickness of said at least one conductive pad, said passivation layer having at least one via therein, said at least one conductive pad extending into and through only a portion of said at least one via; and

a second semiconductor device having at least one lead on a first side thereof, said at least one lead of said second semiconductor device having at least one conductive pad disposed thereon, said at least one conductive pad of said second semiconductor device having a substantially flat surface thereon, having a thickness and extending above said first side of said second semiconductor device, said thickness of said at least one conductive pad of said second semiconductor device being at least a thickness of a remaining portion of said at least one via having said at least one conductive pad of said first semiconductor device extending thereinto, said second semiconductor device being juxtaposed to said first semiconductor device with said substantially flat surface of said at least one conductive pad on said at least one lead of said first semiconductor device substantially movably electrically contacting without mechanical attachment said substantially flat surface of said at least one conductive pad on said at least one lead of said second semiconductor device substantially making electrical contact therewith, said first semiconductor device being attached to said second semiconductor device by an encapsulation material substantially surrounding said first semiconductor device and a portion of said second semiconductor device.

9. (Previously Amended) The semiconductor assembly of claim 8, wherein at least one of said first side of said first semiconductor device and said first side of said second semiconductor device includes at least one groove thereon.

11. (Previously Amended) The semiconductor assembly of claim 9, wherein at least one of said first semiconductor device and said second semiconductor device comprises a silicon wafer.

12. (Previously Amended) An assembly comprising:

a first semiconductor device having a plurality of leads on a first side thereof, each lead of said plurality of leads having a conductive pad disposed thereon in a substantially horizontal plane, each conductive pad having a substantially flat surface disposed in said substantially horizontal plane thereon, having a thickness and extending above said first side of said first semiconductor device said thickness of said each conductive pad, said first semiconductor device having a passivation layer disposed on said first side thereof having a thickness greater than said thickness of said each conductive pad, said passivation layer having at least one via therein for said each conductive pad, said each conductive pad extending into and through only a portion of said at least one via, and said first semiconductor device having a layer of adhesive covering at least a portion of said passivation layer on said first side, said layer of adhesive having a thickness; and

a second semiconductor device having a plurality of leads on a first side thereof, each lead of said plurality of leads of said second semiconductor device having a conductive pad disposed thereon in a substantially horizontal plane, each conductive pad of said second semiconductor device having a substantially flat surface disposed in said substantially horizontal plane thereon, having a thickness and extending above said first side of said second semiconductor device, said thickness of said each conductive pad of said second semiconductor device being at least a combined thickness of said layer of adhesive covering at least a portion of said passivation layer on said first side of said first semiconductor device and a remaining portion of said each at least one via having said conductive pad of said first semiconductor device extending thereinto, said second semiconductor device being juxtaposed to said first semiconductor device by said layer of adhesive, said first semiconductor device having at least one conductive pad disposed on at least one lead of said plurality of leads of said first semiconductor device forming movable electrical contact without mechanical attachment with at least one conductive pad on at least one lead of said plurality of leads of said second semiconductor device,

said movable, electrical contact provided when said second semiconductor device is permanently attached to said first semiconductor device by said layer of adhesive.

13. (Previously Amended) The assembly of claim 12, wherein at least one of said first side of said first semiconductor device and said first side of said second semiconductor device includes at least one groove thereon.

15. (Previously Amended) The assembly of claim 12, wherein at least one of said first semiconductor device and said second semiconductor device comprises a silicon wafer.

16. (Twice Amended) An assembly comprising:
a silicon substrate having a plurality of leads on a first side thereof, each lead of said plurality of leads having a conductive pad disposed thereon in a substantially horizontal plane, each conductive pad having a substantially flat surface disposed in said substantially horizontal plane thereon, having a thickness and extending above said first side of said silicon substrate said thickness of said each conductive pad, said silicon substrate having a passivation layer disposed on said first side thereof having a thickness greater than said thickness of said each conductive pad, said passivation layer having at least one via therein for said each conductive pad, said each conductive pad extending into and through only a portion of said at least one via, and said silicon substrate having a layer of adhesive covering at least a portion of said passivation layer on said first side, said layer of adhesive having a thickness; and at least two semiconductor devices, each having a plurality of leads on a first side thereof, each lead of said plurality of leads having a conductive pad disposed thereon in a substantially horizontal plane, each conductive pad having a substantially flat surface disposed in said substantially horizontal plane thereon, having a thickness and extending above said first side of a semiconductor device, said thickness of said each conductive pad of a semiconductor device being at least a

combined thickness of said layer of adhesive covering at least a portion of said passivation layer on said first side of said silicon substrate and a remaining portion of said each at least one via having said each conductive pad of said silicon substrate extending thereinto, said at least two semiconductor devices being juxtaposed to said silicon substrate by said layer of adhesive, said silicon substrate having said conductive pad on at least one lead of said plurality of leads on said silicon substrate forming movable electrical contact without mechanical attachment with said conductive pad on at least one lead of said plurality of leads of a semiconductor device, said movable, electrical contact provided when a semiconductor device is permanently attached to said silicon substrate by said layer of adhesive.

17. (Twice Amended) The assembly of claim 16, wherein at least one of said first side of said silicon substrate and said first side of a semiconductor device includes at least one groove thereon.

19. (Twice Amended) The assembly of claim 16, wherein at least one of said silicon substrate and a semiconductor device comprises a silicon wafer.

20. (Twice Amended) An assembly comprising:
a substrate having at least one lead on a facing surface thereof, said at least one lead having at least one conductive pad disposed thereon, said at least one conductive pad having an upper surface, having a thickness and extending above said facing surface of said substrate said thickness of said at least one conductive pad, said substrate having a passivation layer disposed on said facing surface thereof having a thickness greater than said thickness of said at least one conductive pad, said passivation layer having at least one via therein, said at least one conductive pad extending into and through only a portion of said at least one via; and

at least one silicon semiconductor device having at least one lead on an active surface thereof having at least one bond pad disposed thereon, said at least one bond pad of said at least one silicon semiconductor device having an upper surface, having a thickness and extending above said active surface of said at least one silicon semiconductor device, said at least one silicon semiconductor device having a layer of adhesive having a thickness on at least a portion of said active surface thereof, said at least one silicon semiconductor device being attached to said substrate by said layer of adhesive, said upper surface of said at least one conductive pad on said at least one lead of said substrate substantially forming movable, electrical contact without mechanical attachment with said upper surface of said at least one bond pad on said at least one lead of said at least one silicon semiconductor device, said movable electrical contact provided when said at least one silicon semiconductor device is permanently attached to said substrate by said layer of adhesive.